सूक्ष्म लघु एवं मध्यम उद्यम
MICRO, SMALL & MEDIUM ENTERPRISES
MSME - TOOL ROOM, JALANDHAR

केन्द्रीय हस्त औज़ार संस्थान, जालन्धर
CENTRAL INSTITUTE OF HAND TOOLS, JALANDHAR
भारत सरकार की सोसायटी
सूक्ष्म, लघु एवं मध्यम उद्यम मंत्रालय
Government of India Society
Ministry of Micro, Small & Medium Enterprises

No. CIHT:JAL:P:499(Vol.VI): Dated: / 05 / 2015
(In reply, please quote this number)

Messers _____
_____
_____
_____

Subject: **TENDER DOCUMENTS**.

Dear Sir,

Sealed tenders (Technical & Commercial separately) are invited in triplicate from the manufacturers/suppliers for the purchase of following:

01. Equipments for Mechatronic Lab (As per detail given in the enclosed Annexure-I).

A set of tender documents containing detailed specifications including terms and conditions for the purchase of Equipments for Mechatronic Lab is attached herewith as Annexure-I.

You are requested to fill up the tender document strictly as per the enclosed format. The specifications of the item offered by you must be indicated against our required specifications.

Last date for receipt of tenders duly complete in all respects is **4th June, 2015** before 11.00 A.M. The technical bids shall be opened on the same date at 2.00 P.M. in the presence of the tenderers or their authorised representatives.

Thanking you,

Yours faithfully,

Sd/-
[RAVI MAHAJAN]
Officer Incharge (Purchase)
For PRINCIPAL DIRECTOR

Encls.: As above.

G.T. Road Bye-Pass, Jalandhar-144 008 (Punjab)
Phone : 0181-2290196, 2290225, 2290226, Telefax : 0181-2290457
E-mail : institute_jld@dataone.in Website : www.ciht.in

ANNEXURE-I

Sr. No.	Description of Item Required	CIHT Specifications	Supplier's Specifications
	EQUIPMENTS FOR MECHATRONIC LAB:		
01.	**Vibration Measurement Development System** The system must have facility for real time online / off line data acquisition The system must have support for 1 numbers of accelerometers, Tri axial 3 axis accelerometers,2 g full scale Differential outputs Field configurable to 1, 2 or 3 axis Digital self-test inputs Rugged solid-state MEMS design Large acceleration dynamic range Low power (USB power option) Frequency response DC to low audio Accelerometer self-test Small and rugged environmental crush-proof enclosure Facility for on boards ADC with 10 TO 12 bit resolutions Facility for on boards PIC based controllers, The system must be capable for upgrade on wireless data acquisition from Facility for data transfer to pc using serial/ USB ports, with facility for display of values/p file data in form of excel output measurement Can be Display to Labview VI using USB Interface.		
02.	**Ultrasonic Distance Measurement Sensor Development Tool** Range: 6 inches to 15 inches Accuracy: 1 inch In built Power supply :5 volts DC Onboard controlled LCD Display 6 On board Test points to study the signals during operation of sensor Faults study using hardware switches, during operation. 15 inches scale for distance measurement concept study. output measurement Can be Display to Labview VI using USB Interface **Reprogrammable Facility Available.**		
03.	**Accelerometer Development Tool** Onboard 3.3V Low Drop voltage regulator with input range of 3.6V to 6V. Supply voltage (Vdd): 2.2V to 3.6V @ 400μA (accelerometer supply range) Sleep mode current: 10 μA Sensitivity: 1.5g : 800 mV/g 6g : 206 mV/ g Static Acceleration : XOUT,YOUT @ -1g: 0.85V @ 0g: 1.65V @ +1g: 2.45V Power Supply: 220 to 230 V at 50 Hz. Output Impedance: 32KΩ . output measurement Can be Display to Labview VI using USB Interface **Reprogrammable Facility Available.**		
04.	**Color Sensor Development Tool** RGB color sensor 8051 compatible 16*2 LCD display to show value of Color Can detect different color up to 10 color on board provided On board power supply section with power indicator and test point. output measurement Can be Display to Labview VI using USB Interface **Reprogrammable Facility Available.**		
05.	**Touch Panel Development Tool** Touch sensor controller 8051 compatible 16*2 LCD display to show value of X,Y Co-ordinates value		

	On board power supply section with power indicator and test point Working Voltage 3-5 V DC Output Reading Rate Every 50 Mili Seconds Data Format (Fixed Length) 22 Byte ASCII The baud rate of output is 9600 bps. It output X, Y and Z values The XY are co-ordinates of touch and Z is pressure value. Output measurement Can be Display to Labview VI using USB Interface **Reprogrammable Facility Available.**	
06.	**Temperature Application Development Tool** On board power jack, lcd 16 X 2 display to observe temperature of different temperature sensors. Input banana sockets to test Lm35,RTD, THERMISTOR, and J type thermocouple sensor. All Sensors available on one board, Range upto 100 C. Operational amplifier and signal conditioning circuit to compulsive output Inbuilt ADC conversion Pic16f/18f compatible hardware Over/under temperature alert indicator Plastic light weight base Easy to operate trainer with help of user manual and video tutorial. Power Supply: 220 to 230 V at 50 Hz. Square wave is either without or with Interrupt output measurement Can be Display to Labview VI using USB Interface **Reprogrammable Facility Available.**	
07.	**Pressure Development Tool** On board pressure sensor kits , with 2 PSI fs, Output is ratio metric to the power supply, Facility to generate and monitor pressure on LCD Display In Both engineering Units mmHg as well as psi Units Wide temp compensation range LED Indicators; Facility for interface, with microcontrollers. output measurement Can be Display to Labview VI using USB Interface **Reprogrammable Facility Available.**	
08.	**Load cell Development Tool** Capacity of 10kg, Easy to plug and play unit Power ON/OFF switch with Led indication Operational amplifier and signal conditioning circuit LCD 16*2 based unit to display load status Test points to measure different signals and voltage System come with operating user Manual, connecting cables. Power Supply: 220 to 230 V at 50 Hz. output measurement Can be Display to Labview VI using USB Interface **Reprogrammable Facility Available.**	
09.	**Strain Gauge Development Tool** Rectangular foil type strain gauge sensor 350 ohm Bonded on a flexible metal strip and connected in wheat stone bridge configuration. Parameter measured strain using Strain gauge mounted cantilever full bridge. Strain gauge mounted axially loaded member full bridge. On board Power supply of +5V DC On board instrumentation Amplifier AD620 section 7 segment Display for displacement readings Microcontroller Atmega328 on board for processing Test point for Strain Gauge and Amplifier output with easy to plug banana connectors. Power Supply: 220 to 230 V at 50 Hz. output measurement Can be Display to Labview VI using USB Interface **Reprogrammable Facility Available.**	
10.	**Robotic Development Tool** The system need to have all components , to make / design , Various type of robotic applicat**ions,** like Line follower Robotic car etc . PC interfacerobotic tool. Microcontroller- ATmega328, Flash Memory- 32 KB	

	SRAM – 2 KB (Atmega328), EEPROM- 1 KB (Atmega328) Clock Speed- 16 MHz, Operating Voltage- 5V Digital I/O Pins- 2 box header (14 pins of which 6 provide PWM output Analog Input Pins- On 1 box header (6 pins) Programming- USB Programming & SPI programming header Reset – On board programming the system must have facility to transfer PWM , as well as Digital data . The system must also provide Various DC stepper / servo motors, with batteries, The system must also have other Controls like IR / DTMF ETC for special controls Set of chassis ,tyres, caster wheel etc. Zigbee interface to control wireless.	
11.	**Robotic ARM Development Kit** **Specification:-** Arm Hardware, Gripper and Gripper Attachment Kit. SSC-32 Servo Controller. DB9 Serial Data Cable. Usb to Serial Converter. Regulated Wall Pack or Adapter. RIOS Arm Control Software for SSC-32. SERVO MOTOR which includes Standard Size Servo. **Features:-** • Serial port-based version with powerful PC software. • Includes license for full version of Flow Botics Studio programming Software. • Advanced inverse kinematics positioning control using mouse. • Easily control up to TWO arms with a single SSC-32!. • Includes everything you need to control the arm from a personal Computer (serial port). • Hardware-Only Kit which includes Arm Hardware. • Gripper and Gripper Attachment Kit, Base Rotate (no servos) (BR-NS), Electronics Carrier (BEC-KT), SSC-32 Servo Controller (SSC-32), • Serial cable (USB to serial adapter is sold separately). • Regulated Wall Pack (WP-04), FlowBotics Studio Software Software :- Arm control demo project included (graphical interface),Includes full Flow Botics Studio Software-RIOS.	
12.	**Image Based Machine Control Tool** The system must be based upon a DSP Processor TMS320DM6437 DSP operating up to 600 Mhz. The machine must have on board camera , for capturing images and making relay based machine Control systems , the system must have learning for camera interface and making system , • 1 TVP5146M2 Video Decoder ,4 video DAC outputs The system with Display : 4.3 Inch TFT Screen • 128 Mbytes of DDR2 DRAM ,UART and CAN I/O interfaces • 16 Mbytes of Flash memory, 64 Mbytes NAND Flash, 2 Mbytes SDRAM • AIC33 stereo codec ,I2C interface with onboard eeprom and expanders • 10/100 Ethernet Interface, Embedded JTAG Emulation • ATA Interface, VLYNQ Interface ,SPDIF Interface, analog, and optical • Compatible with Code Composer Studio 3.3 • Compatible with Spectrum Digital JTAG emulators • Board specific version of Code Composer Studio • Codec Engine ,Codec evaluation including: H.264, MPEG-4,G.711 • Network Developer's Kit (NDK)Evaluation (Real-time TCP/IP stack) • PC-based demo video application and sample Audio/Video files • SoC Analyzer for system-level tuning and optimization • Video, Imaging, Audio, and Speech Codecs. The machine need to be high speed ,CPU along with with special algorithm , as well as high speed response . along with face verification process , to make the machine operations Face recognition Capacity: 500 (1:N) /700(1:G) /3000(1:1) Camera : High Resolution Infrared Camera Communications: RS232 ,RS485, TCP/IP USB-HOST: Two USB-Host Processor: Multi-Bio CPU 800 MHz Memory : 256M Flash, 64M SDRAM Access Control Interface: 3rd party Electric lock, Door Sensor, Exit button.	

13.	**PC Based transducer development board** **Specification:** The system must have various sensor like Temp Sensors (LM35 , PT100) ,Proximity switches, LDR (LM 324 & LDR) & IR Sensors (with transmitter receiver with Encoder/decoder) , proximity switches (Inductive / capacitive) , photo electric sensors , With signal conditioning and other required circuitary. With PC Interface thru USB Bus with data acquisition system Having 8 channel 12-Bit Analog Inputs , 2 analog outputs 20 Digital Input output lines with 2 no of relays. Complete Software Control Must support Labview software , along with Drivers with experimental user manual with example codes for the above mentioned sensors. on board 8 digital output (LED's) & with on board 8 digital input (8 pin dip switch) on board buzzer for indication. Facility for external signal interface, with Potentiometer ,PGA with Gains of 1, 2, 4, 5, 8, 10, 16, or 20 V/V. Up to 8 k Samples/Sec (Burst) or 1.2 k Samples/Second (Stream) Supports Software or Hardware Timed Acquisition.2 Analog Outputs, 20 Digital I/O (Up to 50 Hz per I/O).32-Bit Counter, with Watchdog Timer Function. USB 2.0/1.1 Low Speed Interface.	
14.	**UNIVERSAL MECHATRONICS SENSOR SYSTEM** Quad copter development tool must be interface with labview for finding the exact position of copter on map. It must be reprogrammable using USB .the system must be supplied with RFID for identification of exact no. of copter Tried and tested combination of frame, motors, esc, propellers, flight controller, radio, battery etc. Gyro + Accelerometer + Magnetometer IMU for full control, Onboard dataflash for logging, GPS included, Google maps waypoint navigation, Auto landing, , Includes long range 6 channel 2.4 GHz radio, battery and charger. Flight time upto 17.5 minutes - without any payload standardard hovering in low wind conditions/indoor. Various modes for manual, autonomous and semi-autonomous control. Fully assembled and tuned - requires about 4-6 hours to assemble , configure and tune from kit. Completely assembled quadcopter frame Properly positioned and damped APM 2.6 flight controller inside the frame. Connected Motors and ESCs . Propellers - mounted in correct directions. 5200 mAh Battery, mounted on top. Connected and configured Flight controller accessories like Power Module, External GPS and Compass. 6 Channel Fully Programmable radio - fully configured for multirotors with modes switching . 4 extra Propellers. Battery Charger with AC adaptor. Basic tools, Hex keys and screwdrivers to tweak custom mods. A unit of gyro ,accelerometer must be supplied in form of training tool . These all sensor must be used for some special application development using microcontroller (Atmega328,PIC) ..Diaplsy of reading must come to 20*4 LCD..All reading must be diaplsy and control using USB port on PC.	
15.	**Advance PLC (Programmable Logic Control) with digital and Analog Input/ output, 9 nos. of modules** **Specification:** Allen Bradley Micrologix PLC. configurable to both 24v dc & 230vac, Built in 24 V DC power supply, Optically isolated I/Os, **Digital inputs & outputs**, **Analog input/outputs**, outputs relays and MOSFETS, 14 inputs, 10 outputs Isolated, I/O LED indication on front line panel, 64 Kbytes memory, I/O simulating devices (switches, Proximities, pushbuttons),program authorization by start and stop push buttons proximity switches both capacitive and inductive. Inputs and outputs should be available on self-oriented latching MS connectors for all inputs and outputs for user interface. Provision to interface PLC module with customized system and for student project interface. Industrial grade ms s. gray powder painted enclosure. Mains socket with self illuminated switch and dual fuse protection. Provision to hold spare fuse. RS-232 is a PC to PLC programming cable and Evaluation s/w key Simulation card(Basic input output study) . Through simulation card we connect input (switches) and output (and output Facility for GSM based alarm monitoring of Conditions ,	

	Facility of Stepper motor control system , with Powers supply . Facility for proximity / capacitive Based Control, and counting. (LED/ Motor) to the PLC Mimic application modules with LED / switches as Indicators & I/Ps Sequential motor starter interface Star /delta starter interface DOL Starter Water level controller Reaction vessel interface Resistance welding interface Traffic Light interface Car parking interface Piston cylinder interface	
16.	**PLC SCADA CONTROL STATION** INTEGRATED PRODUCTION AND PERFORMANCE SUITE Supervisory HMI Software for Enterprise Solutions FactoryTalk View, including FactoryTalk View SE and FactoryTalk View ME, are HMI software products designed with a common look, feel, and navigation to help speed HMI application development and training time. Premier integration with Logix-based controllers allows faster and more accurate system implementation. Allows manufacturers to remotely monitor plant-floor operations, extending visualization and realtime decision capabilities to browser-based remote users. View applications from the office, home or on the road via an Internet browser. Distributed and scalable architecture that supports distributed-server/multi-user applications with redundancy. Provides maximum control over information where you want it. Highly scalable architecture can be applied to a stand-alone one-server/one-user application or to multiple users interfacing with multiple servers. Targeted at supervisory-level monitoring and control applications that need a distributed and scalable architecture. Ideally suited for line-level monitoring, control and data acquisition. Provides advanced HMI capabilities. Can be applied to stand-alone one-server, one-client applications. Sequential motor Starter interface Star /delta starter interface DOL Starter Water level controller Reaction vessel interface Resistance welding interface Traffic Light Car parking interface Piston cylinder interface Tutorial to control all plc application through scada must be given in • 8-inch Capacitive Touchscreen • 1.86 GHz Intel Atom Z3745 Quad Core Processor • Wi-Fi Enabled • 8 MP Primary Camera • 1.6 MP Secondary Camera • Expandable Storage Capacity of 64 GB • Android v4.4 (KitKat) OS	

TERMS & CONDITIONS:

01. The Technical & Commercial tender/quotation should be submitted separately in triplicate.
02. The rates quoted should be on F.O.R. destination basis.
03. The tender/quotation should remain valid for 90 days from the date of opening of the tender.

Contd…6…

04. The tender/quotation should be made in lumpsum price separately for any/each item.
05. In case available on DGS&D rate contract, please attach valid Registration Certificate.
06. 90% Payment shall be made after delivery and installation, commissioning, successful trial, functioning & training of the offered item at CIHT, Jalandhar and remaining 10% in one month subject to final acceptance of stores. **The party will have to deposit a Performance Bank Guarantee equal to the 5% amount which will remain valid till Warrantee period**.
07. (a) The tender/quotation must accompany demand draft/pay order amounting Rs.70,000/- (Rupees Seventy Thousand only) in the name of the Principal Director, Central Institute of Hand Tools payable at Jalandhar towards lumpsum amount of Earnest Money (Refundable). **The Earnest Money must be attached with the Technical Bid.** The same will be forfeited, if the execution of the order is not made in time. **The offers without Earnest Money Deposit will be considered as unresponsive and will be rejected.**
    (b) Parties registered with DGS&D or NSIC under Government Store purchase programme are exempted from the payment of Earnest Money. **A photocopy of the valid Registration Certificate must be attached with the Technical Bid**.
08. The Principal Director, Central Institute of Hand Tools, Jalandhar does not undertake any responsibility for non receipt/loss in transit or late receipt of tenders and also reserves the right to reject any or all the tenders either in part or full without assigning any reason thereof.
09. The tender/quotation should be duly sealed and addressed to The Principal Director, Central Institute of Hand Tools, G.T. Road, Bye Pass, Opp. Shaheed Bhagat Singh Colony, Jalandhar City as **"TENDER/QUOTATION FOR THE PURCHASE OF EQUIPMENTS FOR MECHATRONIC LAB"** and should reach this office latest by **4th June, 2015 before 11.00 A.M**. The Technical bids shall be opened on the same date at 2.00 p.m. in the presence of the tenderers or their authorised representatives.
10. The Purchase Committee has the right not to accept the lowest rates quoted by the suppliers/ manufacturers without assigning any reason.
11. Non fulfilling of any of the conditions, the tenders/quotations are liable to be rejected.
12. The decision of the Purchase Committee shall be final and binding on all the parties.
13. Conditional, late, incomplete and telegraphic tenders or tenders without earnest money shall not be accepted.
14. The tender documents can also be downloaded from **Website: eprocure.gov.in** and the party will have to pay Rs.500/- by means of demand draft at the time of submission of tender.
15. The manufacturers/suppliers should clearly mention about the following points:
    (i) Price quoted is on F.O.R. Destination basis or Ex-Works basis
    (ii) Packing & Forwarding Charges
    (iii) Excise Duty/Custom Duty
    (iv) Central Sales Tax/V.A.T.
    (v) Freight Charges
    (vi) Transit Insurance
    (vii) Installation & Commissioning Charges
    (viii) Place of Inspection
    (ix) Delivery Period
    (x) Guarantee/Warrantee/Support
    (xi) Validity of Offer
    (xii) Whether Earnest Money Deposited or Registered with DGS&D/NSIC
    (xiii) Training to our Personnel
    (xiv) Payment terms
    (xv) List of Users.
16. All disputes are subject to Jalandhar jurisdiction.

Sd/-
[RAVI MAHAJAN]
Officer Incharge (Purchase)
For PRINCIPAL DIRECTOR